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ABSTRACT

This paper presents information on the development, over a 3-year period, of a computer literacy curriculum for the psychology master's program of Pepperdine University. The discussion is organized under three topics: curriculum, faculty development, and resources. A chronological flow chart is provided in Table 1, describing progress in accomplishing computer literacy objectives in each area, from the spring of 1982 through the winter of 1985. Table 2 lists courses in the program, relevant computer literacy objectives, and suggested software programs. Table 3 outlines problems encountered during implementation of the program and offers possible solutions. Table 4 lists suggested resources including software companies with representative samples of programs; publications related to computers and psychology; and interest groups. Appended is a copy of the Computer Literacy Needs Assessment Sheet originally distrubed to members of the Pepperdine faculty. (Author/MCF)

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INTEGRATING COMPUTER LITERACY INTO THE MASTER'S LEVEL CURRICULUM

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Paper presented at the Annual Meeting of the Western Psychological Association, San Jose, CA, April 18-21, 1985.

Integrating "Computer Literacy" Into the Master's Level Curriculum

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Pepperdine University

This presentation reviews our progress over the last three years in defining computer literacy for a Psychology Master's program; implementing its integration into the curriculum; and promoting its development among the faculty. It is our hope that this discussion will be helpful to others who are faced with the same challenge of "modernizing" the curriculum to keep up with technological advances.

This discussion is organized under three topics: **curriculum**, **faculty development**, and **resources**. A chronological flow-chart is presented in **Table 1** which shows our progress in accomplishing computer literacy objectives over a three year period. **Table 2** is a chart which lists courses in our program, relevant computer literacy objectives, and suggested software programs. **Table 3** outlines the problems we encountered in attempting to achieve computer literacy and offers possible solutions, based on our experience. Finally, **Table 4** lists suggested resources including software companies with representative samples of programs; publications related to computers and psychology; and interest groups.

Chronological Flow Chart
Table 1

Starting Point

In the Spring of 1982 an announcement was made by the President of Pepperdine University that computer literacy would be a university-wide commitment by 1984. In his public statement the following goals were enumerated: exploration of short-and long-term curriculum issues; expansion of microcomputer-based academic laboratories; and establishment of information processing courses. The School catalog incorporates the statement "students should be aware that there may be significant changes in some courses to reflect this commitment." Each school was responsible for developing a task force to define and implement computer literacy. The Graduate School of Education and Psychology is one of four schools in the university. It contains two divisions: the Psychology Division which offers a Master's degree with a specialization in marriage and family counseling, and the Education Division which has several master's degrees and a doctoral program.

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Curriculum

Fall, 1982: While the Psychology Division was in the process of revising the curriculum, a required one-unit course, "Computer Applications and Implications in Psychology", was designed as an initial effort to achieve our computer literacy commitment. To avoid increasing the length of the Master's requirements, we reduced a three-unit course to two-units to accommodate this addition. We initially scheduled the Computer course at the end of the program.

Fall, 1983: A joint Education and Psychology committee was established to define and implement computer literacy. Definitions of computer literacy were reviewed and the one considered most appropriate was accepted.

Winter, 1984: The committee began to review all courses in both Psychology and Education programs. For each course, relevant and appropriate computer literacy objectives were listed and discussed. The representatives from the psychology division reported back to the psychology faculty as a whole, receiving input and suggestions. The psychology division decided that the Computer Applications course should be offered at the beginning of the program because it taught skills that would be helpful throughout graduate school.

Spring, 1984: The committee concluded its curriculum review, presented a summary of its results in a matrix form, listed computer literacy objectives for the total program, and then assigned them to courses. The actual strategy of implementation was left to another committee, "Curriculum and Programs."

Fall, 1984: By this time, the computer literacy committee had defined computer literacy and made recommendations for implementing literacy in each program. A subcommittee within the Psychology Division proceeded with plans for fulfilling the recommendations of the committee. A project on computers and psychology was proposed by two faculty members to discover the most appropriate ways to accomplish these recommendations.

Winter, 1985: A literature review was completed to investigate the current applications of computers in psychology. Two computer literacy projects were initiated with the involvement of student volunteers. Surveys were distributed to faculty and students to investigate several issues regarding computers and psychology. A plan was developed to create videotapes which would demonstrate computer applications in psychology. The first videotape was completed.

Faculty Development

Fall, 1982: A "Faculty Colloquia Committee" had just been started for the purpose of planning activities for professional development. This committee decided to respond to the President's announcement regarding computer literacy by dedicating itself to the task of developing computer literacy among the faculty. A "needs assessment survey" was distributed to faculty members, along with a handout which briefly defined the terms and skills (copies attached.) Respondents were asked to indicate "need" or "have" next to each skill, and also to indicate the trimester in which they would like to build specific skills.

Winter and Spring, 1983: Based on returns of surveys, the Chair of the Committee, Cara Garcia, constructed "skills groups." Faculty members were asked to indicate the days and times which would be convenient; efforts were made to schedule skill-building activities around these times. Activities included videotaped programs on computers; hands-on experience with word-processing and spreadsheet programs; and demonstrations by vendors of hardware and software. Attendance at "skills group meetings" was poor except for a core of enthusiasts.

Fall, 1983: The computer literacy committee described in the "curriculum" section above also addressed the issue of faculty training. Members of this committee were sensitive to the problem of faculty resistance and cautious about imposing computer literacy in an objectionable way. Instead of continuing with group activities, a "buddy system" was developed. Faculty members who indicated a desire to learn computer skills were assigned to a committee member who would serve as tutor.

Winter, 1984: Easy-to-learn software was selected for initial training efforts (the **pfs** line of software, used on the IBM). The "buddy system" was viewed as successful for the people who volunteered. The committee used alternate meetings to learn a new software package and invited other interested faculty members. The university arranged for special purchase plans and discounts from selected vendors, encouraging faculty to purchase computers for home use. The committee requested a special computer for the faculty to give us access at times when the academic computer lab was closed.

Spring, 1984: By this time, pro-computer faculty members were actively engaged in building skills, buying computers, and sharing their knowledge with others. There were several strongly "resistant" faculty members who either saw computers as irrelevant to their needs or who objected to the perceived zeal with which this piece of office equipment was being

exalted. The committee that was elected to design a doctoral program in psychology included one such member. During the process of working on a proposal, the computer demonstrated its usefulness in making the task more efficient. The opportunity to gain computer skills in the process of accomplishing a relevant and high-priority professional goal was seen as an important vehicle for overcoming resistance. Awareness of relevant computer applications was increased through "show and tell" testimonials at an all-school faculty meeting.

Winter, 1985: To assess progress in faculty development, we distributed a copy of the original "needs assessment survey" and tabulated the changes in response. One thing we noted was that the survey needed to be revised: not only had our own awareness increased, but in a three year period there have been significant changes in the field. Our current strategy for continued faculty development is tied to the videotape project mentioned in the "curriculum" section. We intend to offer these tapes to faculty members teaching the relevant course and thereby increase their awareness and interest in current computer applications. We have reached the point where increased computer literacy has put a strain on available resource and continued efforts to increase faculty use of computers must be preceded by expansion of available computer facilities.

Resources

Fall, 1982: Computer resources were fairly scarce at this point. It was obvious that additional resources would be essential if we were to fulfill the commitment to computer literacy. Plans to acquire additional computers were made to coincide with the upcoming move to a new facility.

Winter, 1983: The Graduate School of Education and Psychology was moved from its old campus to a new office building. In anticipation of greater computer literacy efforts, space was created for a computer lab and two "electronic classrooms" in this new building. By this time, the computer lab housed several models of computers including Apple, Radio Shack, Commodore, Vector, Osborne, and Atari. Many of these computers were donated by companies wishing to gain greater exposure to these computers by our students.

Spring, 1983: Pepperdine was selected by IBM as a training site to train teachers how to use IBM computers in the classroom as well as for administrative purposes. In return, IBM donated thirteen IBM PC's to Pepperdine. In addition, Pepperdine purchased several Victor computers and made Victors available to faculty, staff, and students as part of a purchase plan.

Winter, 1984: Pepperdine faced one of the side effects of the competitive computer field: the Victor computer firm went bankrupt. The University as well as several faculty and staff had purchased computers from a company which did not have a long life span. This limited the amount of software programs, service, and support available for these machines. To keep our computer efforts from faltering, a committee was created to investigate new purchase plan arrangements.

Spring, 1984: Several psychology-related software programs were beginning to emerge. We realized the need to acquire some of these programs in order to meet our objective of integrating computer literacy throughout the curriculum. We examined the available software and listed the type of packages we wanted to acquire. Due to the expense of these packages, we realized that we would need to submit a budget to acquire these programs in the following academic year.

Fall, 1984: A new purchase plan agreement was announced which allowed faculty, staff, and students to acquire computers which had greater promise of longevity than the Victors: IBM, Apple, and Compaq. A software budget was developed and submitted in an effort to begin a library of psychology-related software. Representatives of psychology-related software companies were invited to demonstrate their packages to the faculty.

Winter, 1985: The software budget was approved. So far we have purchased computer-assisted diagnosis programs for adults and children and interpretive software programs for selected projective tests. We are in the process of ordering several other programs including personality tests (MMPI, CPI, 16 PF, Rorschach), intelligence tests (WISC-R, WAIS-R), a career interest inventory (Strong-Campbell), a psychosocial history program, an office management program, and selected self-help programs. The acquisition of this software will lead to an increased demand on our current computer resources and likely require that additional computers are purchased in the near future.

TABLE 2
(1 of 3)

Course Content	Computer Literacy Objectives	Possible Software Programs
Psychopathology	1. Use of computer-assisted diagnosis 2. Expain advantages and disadvantages of C.A. diagnosis 3. Critically evaluate new concepts which describe computer-related psychopathology	Adult Diagnositic Screening (RH) Child Diagnostic Screening (RH) Millon Clinical Multiaxial Inventory (NLS)
Assessment of Intelligence	1. Score and interpret intelligence tests 2. Examine ethical/legal/ clinical issues 3. Evaluate advantages/ disadvantages	WAIS - R (PAR) WISC - R (PAR) WPPSI (PAR)
Personality Assessment	1. Administer, score, and interpret personality tests 2. Ethical/legal/clinical issues in use of computer on personality assessment 3. Evaluate advantages and disadvantages	MMPI (PAR, AI, NCS, B) CPI (AI, NCS, B) Rorschach (AI) 16 PF (PAR, AI, NCS) House-Tree- Person (RH)
Group Dynamics	1. Use of wordprocessor for maintaining group process notes 2. Use of database management system for lists of group resources in L.A. area	Wordstar PFS-Write (SPS) PFS-File (SPC)

TABLE 2
(2 of 3)

Course Content	Computer Literacy Objectives	Possible Software Programs
Research/ Statistics	1. Classroom demo. of sampling procedures 2. Use of computers for storing, manipulating and analyzing data 3. Literature search via computer (Dialog)	Survey Sampling (C) Pepstat SPSS SPS Number Cruncher Psycinfo
Developmental	1. Examine child's behavior and skills and compare to age norms via computer	Discover Your Baby (BHT)
Counseling/ Psychotherapy	1.Computer-Assisted interviewing; advantage and disadvant. of client response 2. Self-help models 3. Therapy simulation 4. Interactive Video	Automated Social History (AI) Psychological/Social History (PAR) Coping With Stress (PC) Handling Depressed Feelings (PC) Eliza
Family Therapy	1. Examine impact of computerization on family 2. Use computer for family genogram 3. Self-help program	Interpersonal Dynamics (C) Family Genogram (AI) Family Therapy Simulation (AI) Handling Relationship Problems (PC)
Learning	1. Demonstrations of learning principles 2. Use of reinforcement principles in computer programs (Computer-Assisted Instruction) 3. Contributions of learning theories to computer technology	Classical Conditioning (PW) Operant Conditioning (PW) Short-term Memory (PW) Biocomp 2001 (BAI)

TABLE 2
(3 of 3)

Course Content	Computer Literacy Objectives	Possible Software Programs
Computer Applications in Psychology	1. Understand historical background of computer 2. Know components of computer and computer terminology 3. Be able to use the following types of software: a. wordprocessing b. spreadsheets c. database management d. graphics 4. Awareness of social and ethical issues 5. Understand role of computer in professional office management 6. Overview of role of computers in psych. 7. Pros and cons of computerization 8. Introduction to programming	PFS-Write, Proof (SPC) PFS-File (SPC) PFS-Graph (SPC) BASIC Office Management System (PAR) Billing System (AI) NOTE: The initials represent Software Companies: See list of RESOURCES

Potential Problems

Curriculum:

1. Defining Computer Literacy:

2. Implementing Literacy:

Possible Solutions

A. "Relativistic" approach to definition: each disclipline defines its own relevant skills and applications

B. Action steps:
   1. Identify applications in field of psychology through search of literature
   2. Survey current practices in other universities
   3. Select applications relevant to particular program

A. Design a required course in computer applications in psychology
B. Develop computer literacy objectives for relevant courses

TABLE 3
(1 of 3)

Potential Problems

Faculty Development:

1. Lack of Awareness:

2. Lack of Skills:

3. Lack of Motivation/Incentive:

4. "Resistance":

Possible Solutions

A. Computer Faire
B. Demonstrations at faculty meetings
C. Guest (vendor) demonstrations
D. "Show and tell" reports by peers

A. Needs assessment Survey
B. Skills-training groups
C. "Buddy system"

A. Individualized definition of literacy
B. Utilization of computer by task force to accomplish high priority goal
C. Teach applications relevant to current teaching duties, e.g., grades, syllabi

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A. Initiative for training from faculty, not administration
B. Non-compulsory activities
C. Selection of easy-to-learn software

TABLE 3
(2 of 3)

Potential Problems

Resources:

1. Lack of Software and Hardware:

2. Available software not used:

3. Successful efforts to increase need produces excessive demand for available resources:

Possible Solutions

A. Long-term budget planning
B. Investigate getting donations or loans from computer companies
C. Consider becoming "evaluation site" for company developing hardware/software
D. Pursue special purchase plans and group discounts for faculty/students

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A. Increase awareness
B. "Hands-on" demonstrations
C. Prepare instructional videotapes
D. Free (noncredit) training classes

A. Coordination of scheduling among all programs/instructors
B. Increase resources (back to #1)

TABLE 3
(3 of 3)

TABLE 4
(1 of 2)

RESOURCES

Code	Software Companies	Selected Available Programs
(AI)	Applied Innovations, Inc. South Kingstown Office Park, Suite A-1 Wakefield, RI 02879	MMPI, 16 PF, CPI, Rorschach, Billing System
(B)	Behaviordyne, Inc. 994 San Antonio Rd., P.O. Box 10994 Palo Alto, CA 94303-0997	MMPI, CPI
(BRI)	Biofeedback Research Institute 6399 Wilshire Blvd., Suite 900 Los Angeles, CA 90048	Biocomp 2001
(C)	Conduit University of Iowa Oakdale Campus Iowa City, IA 52242	Memory/Cognition, Survey Sampling, Interpersonal Dynamics
(NCS)	National Computer Systems Professional Assessment Services P.O. Box 1416 Minneapolis, MN 55440	MMPI, CPI, Strong-Campbell, Millon, 16PF, Psychosocial History
(PAR)	Psychological Assessment Resources P.O. Box 98 Odessa, FL 33556	MMPI, 16PF, Eating Disorders, WISC-R, WAIS-R, WPPSI
(PW)	PsychWorld McGraw Hill Book Company 1221 Avenue of the Americas New York, NY 10020	Classical/Operant Conditioning, Short-Term Memory, Brain Anatomy
(PC)	PsyComp Self Help Software P.O. Box 994 Woodland Hills, CA 91367	Relationships, Depression, Sex, Stress
(RH)	Reason House 204 East Joppa Rd. Penthouse Suite 10 Towson, Maryland 21204	Adult/Child DSM Diagnosis, House-Tree-Person Test
(SPC)	Software Publishing Corporation 1901 Landings Dr. Mt. View, CA 94043	PFS Write, File, Proof, Graph

TABLE 4
(2 of 2)

Publications

Computers in Human Behavior
Dr. Terry B. Gutkin
Educational Psychology Clinic
University of Nebraska
130 Bancroft Hall
Lincoln, NB 68588

Computers in Human Services
The Haworth Press
28 East 22 Street
New York, NY 10010

MicroPsych Network
Professional Resource Exchange
P.O. Box 15560
Sarasota, FL 34277-1560

Computers in Psychiatry/Psychology
26 Trumbull St.
New Haven, CT 06511

Interest Groups

CAPS/ERIC Clearinghouse
2108 School of Education
The University of Michigan
Ann Arbor, MI 48109-1259

EDUCOM
P.O. Box 364
Princeton, NJ 08540

Society for Computers in Psych
Dr. David A. Eckerman
Department of Psychology 013A
University of North Carolina
Chapel Hill, NC 27514

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Pressman, P.M. (1984) Microcomputers and the private practicioners. Homewood, IL: Dorsey Press.

Schwartz, M.D. (1984) Using computers in clinical practice. New York: Haworth Press.

Souder, H.R. and N.M. Paz. (1983) A systematic process for getting computers into the college classroom. Educational Technology (Sept), 40-43.

Graduate School of Education and Psychology
Pepperdine University
Prepared by Cara Garcia

October 5, 1982

Computer Literacy Needs Assessment

Background: Dick Williams, an outside evaluator of GSEP, suggested that the faculty highlight its greatest strength--teaching. A faculty colloquia was thought to be a good vehicle for this, and the GSEP Faculty Colloquia Committee was appointed: Garcia (Chair), Hiatt, Cannings, Andrews, Ingram, Ygelsias.

Concurrently, the University central administration recommended that all personnel become "computer literate." Consequently, the Colloquia committee was charged by the Curriculum and Program Committee to assist the faculty, on a voluntary and individualized basis, in achieving computer literacy.

Overview of the Computer Literacy Process for GSEP: The first step will be to conduct a needs assessment for each faculty member. The Colloquia committee will analyze the assessment results and help arrange individual, small group, and whole faculty events to meet expressed needs throughout the school year. At the end of each trimester, each faculty member will be asked to update his/her needs assessment sheet: indicating what needs have been met and/or what new needs have arisen.

When faculty members have met their own needs, they may evaluate themselves against the University's definition of "computer literate" (forthcoming), and decide whether or not they have attained such. It is assumed that the University will be seeking computer literate faculty for involvement in projects as well as in instruction.

Directions for Completing the Needs Assessment Sheets:

1. *Read each skill statement listed. Refer to the Glossary and Sample Needs Assessment Sheet for clarification.*
2. *For each skill you "have", write "have" in the "Fall" column to the right of the skill statement.*
3. *For each skill you "need", write "need" in the "Fall" column.*
4. *For each skill you neither have nor need, leave the "Fall" column blank for the time being. If your need for a skill arises later you can make it "need" for the next trimester.*
5. *Return your completed Needs Assessment Sheets to Dr. Stimac by October 10, 1982*

Name _____

Computer Literacy Needs Assessment Sheet
Developed by Cara Garcia
Pepperdine University

I. USE OF COMPUTERS

A. Word Processing
1. Compose, edit, and print text using floppy disc and line printer. I.A.1. ___

B. Data Processing

1. Prepare data for computing. I.B.1. ___
2. Run package statistical programs, e.g. PEPSTAT and/or SPSS. I.B.2. ___
3. Assign course grades, e.g. GRADEBOOK program. I.B.3. ___
4. Manipulate business records, e.g. tax deductable records. I.B.4. ___

C. Library Searches
1. Participate in a topic search, e.g. DIALOG or LANCERS searches. I.C.1. ___
2. Participate in a catalog search, e.g. ORION search. I.C.2. ___

D. Computer-Assisted Instruction (CAI)
1. Learn from an interactive program, e.g. "HOW to Write an Analytical Paper." I.D.1. ___
2. Learn how computers can drive videocassette programs. I.D.2. ___

E. Recreation
1. Play games with a microcomputer, e.g. "Hangman." I.E.1. ___

F. Computer-Managed Instruction (CMI)
1. Learn how computers assist in record-keeping. I.F.1. ___
2. Evaluate existing software. I.F.2. ___

G. Administrative Management of Personnel
1. Learn how computers can help supervisors and managers, e.g. schedule meetings, keep records. I.G.1. ___

II. PROGRAM COMPUTERS

A. Learn and use a relevant information processing language such as BASIC or PASCAL. II.A. ___
B. Learn and use a relevant instructional programming language such as LOGO or PILOT. II.B. ___

III. EVALUATION

A. Learn criteria for evaluating hardware. III.A. ___
B. Learn criteria for evaluating software. III.B. ___
C. Reprogram a software package to meet own needs. III.C. ___

IV. HISTORY & DEVELOPMENT OF INFORMATION TECHNOLOGY
- A. Learn the history of mainframes, mini's, and micro's to present date — IV.A. _____
- B. Learn the future forecasts of social revolution related to computer and information technology. — IV.B. _____

V. UNIVERSITY RESOURCES
- A. Use the Academic Computing Lab. — V.A. _____
- B. Establish and use EDUNET Account. — V.B. _____
- C. Know University-sponsored activities for computer literacy. — V.C. _____

VI. UPDATE INFORMATION
- A. Know of computer literacy activities at other universities. — VI.A. _____
- B. Visit relevant sites to learn of computer applications in education. — VI.B. _____
- C. Know of new computer education programs and applications, e.g. videodisc. — VI.C. _____
- D. Be aware of latest advances in relevant computer technology via journals and publications. — VI.D. _____

Glossary of Terms

CAI Computer-Assisted Instruction; condition in which the computer is used to provide either input or practice for the students.

catalog search - a library search of a card catalog which reveals the location and status of a volume.

computer literacy - a state of meeting one's receptive and expressive computerized communication needs.

CMI Computer-Managed Instruction; condition in which the computer stores information to group and rank students, e.g. achievement scores.

DIALOG One of several ways to search multiple data banks such as the ERIC system or Dissertation Abstracts using "descriptors" and related terms.

EDUNET a network of computer programs accessed by telephone.

floppy disc - a flexible magnetic disk which scores programs and files.

hardware - machinery on which software is operable.

information processing language - a high level programming language practically applicable for use in general problem solving.

instructional programming language - a high level programming language practically applied for use in developing instructional programs.

interactive program - one which responds variably to the user's actions.

line printer - movable print head which prints line-by-line at control of computer program.

mainframe - largest capacity computer.

mini-computer - stand-alone computer; smaller than mainframe, larger than micro.

micro-computer - smallest stand-alone computer.

program - a list of instruction to tell the computer what to do.

software - programs and related information such as instruction booklets.

topic search - electronic library search for bibliographic information and text which is organized by key words called "descriptors."